

WHAT IS CLAIMED IS:

1. A method of correcting erroneous image signals comprising:
 - providing a high signal and a low signal based on an image signal of a previously processed pixel, said high signal and said low signal defining a signal range about said image signal of said previously processed pixel; and
 - digitizing an analog signal of a current pixel using said high and low signals as references to derive a digitized signal of said current pixel within said signal range, including limiting said analog signal of said current pixel by said high and low signals when a signal difference between said previously processed pixel and said current pixel is greater than a predefined threshold.
- 15 2. The method of claim 1 further comprising a step of converting said image signal of said previously processed pixel to said high signal and said low signal.
- 20 3. The method of claim 2 wherein said step of converting said image signal of said previously processed pixel includes digital-to-analog converting said image signal of said previously processed pixel to said high signal and said low signal, wherein said high and low signals are voltages.
- 25 4. The method of claim 1 further comprising a step of comparing said analog signal of said current pixel with an analog signal of a previously processed pixel.
- 30 5. The method of claim 4 further comprising a step of converting said image signal of said previously processed pixel to said high signal and said low signal, wherein said high and low signals are dependent on said comparing of said analog signal of said current pixel with said analog signal of said previously processed pixel.

6. The method of claim 1 wherein said step of digitizing said analog signal of said current pixel includes utilizing a flash analog-to-digital converter for said digitizing.

5 7. The method of claim 1 further comprising a step of adding a conversion signal to said digitized signal of said current pixel, said conversion signal being based on said low signal.

10 8. The method of claim 1 wherein said image signal of said previously processed pixel is a digital signal, and wherein said image signal has more bits than said digitized signal of said current pixel.

15 9. A system for correcting erroneous image signals comprising:
means for outputting a high signal and a low signal based on
a signal of a previously processed pixel, said high signal and said low
signal defining a signal range about said image signal of said previously
processed pixel; and
20 an analog-to-digital converter having a high reference input
and a low reference input to receive said high signal and said low signal,
said analog-to-digital converter being configured to digitize an analog
signal of a current pixel using said high and low signals as references to
derive a digitized signal of said current pixel within said signal range such
that said analog signal of said current pixel is limited when a signal
difference between said previously processed pixel and said current pixel
25 is greater than a predefined threshold.

30 10. The system of claim 9 wherein said outputting means includes a digital-to-analog converter to generate said high and low signals from said image signal of said previously processed pixel.

11. The system of claim 10 wherein said digital-to-analog converter is configured to convert an input digital signal having more bits than said digitized signal of said current pixel.

12. The system of claim 11 wherein said digital-to-analog converter is a ten bit analog-to-digital converter, and wherein said an analog-to-digital converter is a seven bit analog-to-digital converter.
- 5 13. The system of claim 10 wherein said outputting means includes a comparator that outputs a comparison signal to said digital-to-analog converter, said comparison signal being based on a comparison of said analog signal of said current pixel with an analog signal of a previously processed pixel, said high and low signals generated by said digital-to-analog converter being dependent on said comparison.
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14. The system of claim 13 wherein said digital-to-analog converter is a ten bit analog-to-digital converter, and wherein said an analog-to-digital converter is a six bit analog-to-digital converter.
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15. The system of claim 9 further comprising a means for adding a conversion signal to said digitized signal, said conversion signal being based on said low signal.
- 20 16. The system of claim 9 wherein said analog-to-digital converter is a flash analog-to-digital converter.

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17. A system for correcting erroneous image signals during analog-to-digital conversion comprising:

a sensor array of photosensitive pixels, each of said photosensitive pixels being configured to accumulate an analog image signal when exposed to light; and

5 an analog-to-digital converter unit operatively coupled to said sensor array to receive analog image signals from said photosensitive pixels, said analog-to-digital converter unit comprising:

10 a digital-to-analog converter that outputs a high signal and a low signal based on a digital image signal of a previously processed photosensitive pixel, said high signal and said low signal defining a signal range about said digital image signal of said previously processed pixel; and

15 an analog-to-digital converter having a high reference input and a low reference input to receive said high signal and said low signal, said analog-to-digital converter being configured to digitize an analog signal of a current photosensitive pixel using said high and low signals as references to derive a digitized signal of said current pixel within said signal range such that said analog signal of said current pixel is limited when a signal difference between said previously processed pixel and said current pixel is greater than a predefined threshold.

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25 18. The system of claim 17 wherein said digital-to-analog converter is configured to convert an input digital signal having more bits than said digitized signal of said current pixel.

30 19. The system of claim 17 wherein an analog-to-digital converter unit includes a comparator that outputs a comparison signal to said digital-to-analog converter, said comparison signal being based on a comparison of said analog signal of said current pixel with an analog signal of a previously processed pixel, said high and low signals being dependent on said comparison.

20. The system of claim 17 further comprising a means for adding a conversion signal to said digitized signal, said conversion signal being based on said low signal.

5 21. The system of claim 17 wherein said analog-to-digital converter is a flash analog-to-digital converter.